

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-38 (Cancelled)

39. (Currently amended) A method for integrated synthesis and analyte determination on a support, comprising the steps of:

- (a) providing a support;
- (b) passing a liquid with, present therein, ~~receptors or~~ receptor building blocks for synthesizing polymeric receptors over the support,
- (c) site- or/and time-specifically immobilizing the ~~receptors or~~ receptor building blocks in each case by photoactivating predetermined positions on the support, ~~the synthesis and analyte determination being carried out in an integrated apparatus, with the synthesis or/and the analyte determination process being monitored and controlled in positions on the support,~~
- (d) ~~where appropriate,~~ repeating steps (b) and (c) until the required receptors have been synthesized in each case on the predetermined positions on the support,
- (e) bringing the support into contact with a sample containing analytes and
- (f) determining the analytes via their binding to the receptors immobilized on said support,

wherein the synthesis and analyte determination is carried out in an integrated apparatus, with the synthesis or/and analyte determination process being monitored and controlled in positions on the support, and wherein said integrated apparatus comprises a programmable light source matrix, a detector matrix, said support which is

arranged between said light source matrix and said detector matrix, and means for supplying fluids into said support and for discharging fluids from said support is used.

40. (Canceled)

41. (Previously presented) The method as claimed in claim 39, characterized in that the analyte is removed from the support after the determination.

42. (Previously presented) The method as claimed in claim 39, characterized in that a plurality of determination cycles is carried out, with the receptors for a subsequent cycle being synthesized on the basis of the information from a preceding cycle.

43. (Previously presented) The method as claimed in claim 42, characterized in that an extension of the receptors from the preceding cycle takes place for the subsequent cycle.

44. (Previously presented) The method as claimed in claim 42, wherein another support with receptors which are modified compared with the preceding cycle is synthesized for the subsequent cycle.

45. (Currently amended) The method as claimed in claim 44, wherein the modification of the receptors comprises a change in the sequence or/and an exclusion of any negative receptors from the preceding cycle.

46. (Previously presented) The method as claimed in claim 39, wherein said support is a planar support.

47. (Previously presented) The method as claimed in claim 39, wherein said support has a plurality of channels.

48. (Previously presented) The method as claimed in claim 39, wherein a plurality of supports is used for a determination cycle.

49. (Previously presented) The method as claimed in claim 48, characterized in that the plurality of supports is synthesized and analyzed in different detection apparatuses between which there is information technology linkage but which may be spatially separated from one another.

50. (Previously presented) The method as claimed in claim 47, wherein said support comprises a plurality of channels with a number of different receptors immobilized in the channels.

51. (Previously presented) The method as claimed in claim 50, characterized in that the support is optically transparent at least in the region of the reaction regions.

52. (Previously presented) The method as claimed in claim 50, wherein the support and building blocks for synthesizing polymeric receptors on the support is in the form of a reagent kit.

53. (Previously presented) The method as claimed in claim 39, characterized in that the apparatus additionally comprises a module for deprotection of reaction components on the support.

54. (Previously presented) The method as claimed in claim 39, characterized in that the apparatus additionally comprises electronic control means.

55. (Currently amended) A method for integrated synthesis and analyte determination on a support, comprising the steps of:

- (a) providing a support which is at least partially transparent;
- (b) passing a liquid with, present therein, ~~receptors or~~ receptor building blocks for synthesizing polymeric receptors over the support,
- (c) site- or/and time-specifically immobilizing the ~~receptors or~~ receptor building blocks in each case on predetermined positions on the support, ~~the synthesis and analyte determination being carried out in an integrated apparatus, with the synthesis or/and the analyte determination process being monitored and controlled in positions on the support,~~
- (d) ~~where appropriate,~~ repeating steps (b) and (c) until the required receptors have been synthesized in each case on the predetermined positions on the support,
- (e) bringing the support into contact with a sample containing analytes and
- (g) determining the analytes via their binding to the receptors immobilized on said support,

wherein the synthesis and analyte determination is carried out in an integrated apparatus, with the synthesis process being monitored and controlled in positions on the support, and wherein said integrated apparatus comprises a programmable light

source matrix, a detector matrix, said support which is arranged between said light source matrix and said detector matrix, and means for supplying fluids into said support and for discharging fluids from said support.